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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/500,475

07/16/2004

Klaus Krumbholz

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23338 7590 12/19/2006  
DENNISON, SCHULTZ & MACDONALD  
1727 KING STREET  
SUITE 105  
ALEXANDRIA, VA 22314

EXAMINER

KOSLOW, CAROL M.

ART UNIT

PAPER NUMBER

1755

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/19/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/500,475	<b>Applicant(s)</b> KRUMBHOLZ, KLAUS	
	<b>Examiner</b> C. Melissa Koslow	<b>Art Unit</b> 1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2006 and 26 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 19-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19, 20 and 22-32 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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This action is in response to applicants' amendments to the claims of 26 October 2006 and the amendment to the specification and the arguments of 5 October 2006. The arguments have overcome the objections to the disclosure with respect to the definition of Me(II)O and Me(IV)O. Applicants have stated that Me(II)O includes CaO and Me(IV)O<sub>2</sub> is limited to metal oxides and SiO<sub>2</sub> is not a metal oxide. This definition of silica is an art acceptable definition. The amendments to the specification have overcome the objection to the specification for failing to provide proper antecedent basis. The amendments to the claims have overcome the 35 USC 112 second paragraph rejections and the art rejections over U.S. patent 5,702,514. The remaining art rejections have been modified in view of the new amended claims. Applicant's arguments with respect to the remaining objections and art rejections have been fully considered but they are not persuasive.

The disclosure is objected to because of the following informalities:

In the table on page 6, the last line is partially cut off. Page 2, lines 6 and 22 contradict each other. Line 6 teaches the total amount of Me(II)O is less than 4 wt% and page 22 teaches the maximum amount of CaO, which applicant has argued is included in the definition of Me(II)O, is 4 wt%. Thus it is unclear what is the actual maximum amount of Me(II)O, 4 wt% or less than 4 wt%. Finally, the teachings with respect to the milling steps on pages 4 and 10 and that in the original claims and new claim 28 create confusion. Pages 4 and 10 teach the milling step after the tempering step occurs at about 10,000 rpm and is silent as to the milling speed of the mill step that occurs before the tempering step. The claims teach the milling step before the tempering step occurs at about 10,000 rpm and does not teach a milling step occurs after the tempering step. This discrepancy needs to be corrected. Appropriate correction is required.

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Applicants did not correct the table on page 6 and applicants' arguments with respect to the definition of Me(II)O and the amendment to the claims have created the contradiction discussed above.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The TEC range of claims 23 and 31 are not found in the specification. It is noted that this range was found in the originally presented claims.

Claim 21 is objected to because of the following informalities: The period at the end of the claim is missing. Appropriate correction is required.

Claims 31 and 32 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no teaching in the original disclosure that the TEC is set to  $10.5-12 \times 10^{-6}/K$  by adjusting the potassium oxide content. The originally filed disclosure teaches the TEC is set to  $9-13.5 \times 10^{-6}/K$  by adjusting the potassium oxide content. There is no teaching that the melting temperature of the glass-ceramic is controlled to  $870-970^{\circ}C$  by adjusting the amount of lithium, sodium and boron oxides. The originally filed disclosure teaches that the baking or fusing temperature of the formed glass-ceramic powder is  $870-970^{\circ}C$ . The baking temperature of a glass-ceramic is different from the melting temperature of the glass-ceramic.

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Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 is indefinite since it teaches the total amount of Me(II)O is less than 4 wt% and the maximum amount of CaO, which applicant has argued is included in the definition of Me(II)O. Thus it is unclear what is the actual maximum amount of Me(II)O, 4 wt% or less than 4 wt%.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 19, 20, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,120,591.

This reference teaches opalescent glass-ceramics, used as a dental material, having a TEC in the range of about  $11-19 \times 10^{-6}/K$  comprising 40-65 wt% silica, 6-13 wt% alumina, 0-3 wt%  $P_2O_5$ , 0.5-4 wt% boron oxide, 1-3 wt% lithium oxide, 6-12 wt% sodium oxide, 5-15 wt% potassium oxide, 0-7 wt% MgO, 0.8-2.5 wt% CaO, 0-2 wt% BaO, 0.1-0.8 wt%  $CeO_2$ , where the total amount of lithium oxide and sodium oxide is 6-15 wt% and the total amount of phosphorus and boron oxides is 0.5-4 wt%. The calculated total amount of MgO, CaO and BaO is 0.8-11.5 wt%. The taught composition and TEC overlaps the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference suggests the claimed glass-ceramic.

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Applicants' arguments have been considered but are not convincing. The fact there are no examples that teach a glass having the claimed composition and TEC does not overcome the rejection. A reference is good for all it teaches and is not limited to the teachings in the examples. The fact the taught glass includes fluorine does not overcome the rejection since applicants have defined the claimed glass-ceramic using the open terminology "comprising", which allows for the presence of components not disclosed by applicants. The rejection is maintained.

Claims 19, 20 and 22-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,200,137 or 6,280,863.

Both of these patents teach opalescent glass-ceramics, used as a dental material, having a TEC in the range of about  $6-12 \times 10^{-6}/K$  comprising 45-70 wt% silica, 5-22 wt% alumina, 0.5-6.5 wt%  $P_2O_5$ , 0-8 wt% boron oxide, 0-5 wt% lithium oxide, 4-13 wt% sodium oxide, 3-8.5 wt% potassium oxide, 0-5 wt% MgO, 1.5-11 wt% CaO, 0-5 wt% BaO, 0.5-3 wt%  $CeO_2$ . The calculated total amount of MgO, CaO and BaO is 1.5-21 wt%. The glass-ceramic is produced by weighting and mixing the taught oxides, melting the mixture, water quenching the melt, grinding the resulting frit in a conventional mill, which is known to include ball mills, tempering the frit at greater than 900 up to 1200°C for 30 minutes to 6 hours, grinding the tempered frit and sieving the resulting powder to obtain a powder having a particle size in the range of 5 to 80 microns. The taught composition, TEC, tempering temperature range and particle size range overlaps the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re*

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*Nehrenberg* 126 USPQ 383 (CCPA 1960). While the references do not teach the apparatus limitations of claims 25-27, these apparatus limitations are not given any weight since they do not affect the process in a manipulative sense. While the references teach the milling speed, one of ordinary skill in the art would have found it obvious to select an optimal milling speed that will allow the formation of the desired particle size in the least amount of time. The claimed speed appears to an optimal milling speed that will allow the formation of the desired particle size in the least amount of time and thus obvious to one of ordinary skill in the art. Finally, one of ordinary skill in the art would have found it obvious to choose compositions which provide a desired TEC in the taught range or to provide a baking or fusing temperature in the taught range of 650-1050°C. The references suggest claimed steps 31 and 32. The reference suggests the claimed glass-ceramic and process.

Applicants' arguments have been considered but are not convincing. The fact the taught glass includes fluorine does not overcome the rejection since applicants have defined the claimed glass-ceramic using the open terminology "comprising", which allows for the presence of components not disclosed by applicants. The fact the examples that teach glasses containing titania or zirconia and the one example that does not contain these oxides is outside the claimed composition does not overcome the rejection. A reference is good for all it teaches and is not limited to the teachings in the examples. The reference teaches that zirconia and titania are optional components. The rejection is maintained.

Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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The claims composition is not taught or suggested by the cited art of record.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
December 15, 2006

  
C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700